



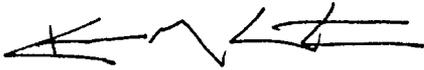
United States Environmental Protection Agency
National Health and Environmental Effects Research Laboratory
Research Triangle Park, NC 27711

OFFICE OF
RESEARCH AND DEVELOPMENT

MEMORANDUM

Date: 30 December 2001

Subject: Revised Analysis of the Thyroid Hormone Data from the Mouse
Immunotoxicology Study

From: Kevin M. Crofton, Ph.D. 
Neurotoxicology Division, MD-74B
National Health Effects and Environmental Research Laboratory

To: Annie Jarabek
National Center for Environmental Assessment

Attached is the revised analyses of the hormone data from the Mouse Immunotoxicology Study (Keil et al, 1999). The analysis in the memo replaces that found in Appendix 7 of the Crofton and Marcus (2001) memo.

This new analyses was conducted due to a mistake in the previous analysis. The previous analysis conducted step-down ANOVAs by age for T3, T4 and TSH. Since there was duration-by-treatment interaction for T4 only, these step-down tests should not have been run for T3 and TSH.

The new analyses show the following:

1. The analysis for T4 is the same as in the previous memo.
2. There was no effect of perchlorate on TSH at any dose or duration of exposure.
3. There was a main of perchlorate on T3, but no interaction with duration. Mean contrast tests revealed significant decreases that were not clearly dose related. The 0.1 and 3.0 doses were significantly different from the controls, the 1.0 and 30.0 doses were not different from the controls.

Attached in Appendix 1 is the SAS printout for these analyses.

References:

- Crofton, K. M.; Marcus, A. (2001) Re-analyses of perchlorate hormone data from the 1998 ERD [memorandum with attachments to Annie Jarabek]. Research Triangle Park, NC: U.S. Environmental Protection Agency, Office of Research and Development; October 15.
- Keil, D.; Warren, D. A.; Jenny, M.; EuDaly, J.; Dillard, R. (1999) Effects of ammonium perchlorate on immunotoxicological, hematological, and thyroid parameters in B6C3F1 female mice. Final report. Charleston, SC: Medical University of South Carolina, Department of Medical Laboratory Sciences; report no. DSWA01-97-0008.

Appendix I - Statistical Analyses of Hormone Data from Mouse Immunotoxicity Study

Keil, D.; Warren, D. A.; Jenny, M.; EuDaly, J.; Dillard, R. (1999) Effects of ammonium perchlorate on immunotoxicological, hematological, and thyroid parameters in B6C3F1 female mice. Final report. Charleston, SC: Medical University of South Carolina, Department of Medical Laboratory Sciences; report no. DSWA01-97-0008.

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NOTE: Running on ALPHASERVER Model 2100 5/300 Serial Number 80000000.

Welcome to the NHEERL-RTP SAS Information Delivery System.

```
1      *THIS FILE IS FOUND AT [Crofton.THYROID.perchlorate]perchlorate_mouse_TH.SAS;  
2      *IT ANALYZES THE THYROID HORMONE DATA FROM THE MOUSE IMMUNOTOX PERCHLORATE STUDY;  
3  
4  
5      *INPUT DATA INTO SAS DATASET;  
6      DATA RAW; INFILE '[CROFTON.THYROID.PERCHLORATE]PERCHLORATE_MOUSE_TH';  
7          INPUT DUR DAY$ LETTER$ DURATION STUDY $ TRT $ ANIM $ T4 TSH T3;  
8
```

NOTE: The infile '[CROFTON.THYROID.PERCHLORATE]PERCHLORATE_MOUSE_TH' is:
File=DSA21:[SAS\$USERS.CROFTON.THYROID.PERCHLORATE]PERCHLORATE_MOUSE_TH.DAT

NOTE: 330 records were read from the infile '[CROFTON.THYROID.PERCHLORATE]PERCHLORATE_MOUSE_TH'.
The minimum record length was 82.
The maximum record length was 85.

NOTE: The data set WORK.RAW has 330 observations and 10 variables.

```
9          PROC PRINT;  
10  
11      *SORT DATA BY TRT -- THEN GET MEANS;  
12
```

NOTE: The PROCEDURE PRINT printed pages 1-6.

```
12      PROC SORT; BY TRT;  
13
```

NOTE: The data set WORK.RAW has 330 observations and 10 variables.

```
13      PROC MEANS N MEAN STDERR MIN MAX STD VAR CV; BY TRT;  
14          VAR T4 T3 TSH;  
15  
16      *SORT DATA BY DURATION AND TRT -- THEN GET MEANS;  
17
```

NOTE: The PROCEDURE MEANS printed page 7.

```
17      PROC SORT; BY DURATION TRT;  
18
```

NOTE: The data set WORK.RAW has 330 observations and 10 variables.

```
18      PROC MEANS N MEAN STDERR MIN MAX STD VAR CV; BY DURATION TRT;  
19          VAR T4 T3 TSH;  
20  
21      *SORT DATA BY STUDY, DURATION AND TRT -- THEN GET MEANS;  
22
```

NOTE: The PROCEDURE MEANS printed pages 8-10.

```
22      PROC SORT; BY STUDY DURATION TRT;
23
```

NOTE: The data set WORK.RAW has 330 observations and 10 variables.

```
23      PROC MEANS N MEAN STDERR MIN MAX STD VAR CV; BY STUDY DURATION TRT;
24              VAR T4 T3 TSH;
25
26
27      *RUN TWO WAY ANOVAs - DURATION TRT - FOR ALL VARIABLES;
28
```

NOTE: The PROCEDURE MEANS printed pages 11-21.

```
28      PROC SORT; BY DURATION TRT;
29
```

NOTE: The data set WORK.RAW has 330 observations and 10 variables.

```
29      PROC GLM;
30              CLASSES DURATION TRT;
31              MODEL T4 T3 TSH = DURATION|TRT;
32              TITLE1 "MOUSE IMMUNOTOX THYROID HORMONE DATA";
33              TITLE2 "PROC GLM - STUDY BY TRT INTERACTIONS";
34
35
36      *STEPDOWN ANOVAS - DATA COLLAPSED ACROSS STUDY - ANOVAS AT EACH DURATION;
37      * THERE WAS A SIGNIF DURATION BY TRT ONLY FOR T4      ;
```

NOTE: The PROCEDURE GLM printed pages 22-25.

```
38      PROC SORT; BY DURATION TRT;
```

NOTE: Input data set is already sorted, no sorting done.

```
39      PROC GLM; BY DURATION;
40              CLASSES TRT;
41              MODEL T4 = TRT;
42              MEANS TRT/DUNCAN LINE;
43              TITLE1 "MOUSE IMMUNOTOX THYROID HORMONE DATA";
44              TITLE2 "PROC GLM - COLLAPSED ACROSS STUDIES";
45              TITLE3 "ONE-WAY ANOVAS FOR T4 AT EACH DURATION";
46
47      *STEPDOWN ANOVA - FOR T3 - NON SIGNIF INTERACTION;
48      * THERE WAS ONLY MAIN EFFECTS OF DURATION AND TRT FOR T4      ;
```

NOTE: The PROCEDURE GLM printed pages 26-34.

```
49      PROC SORT; BY DURATION TRT;
```

NOTE: Input data set is already sorted, no sorting done.

```
50      PROC GLM;
51              CLASSES DURATION TRT;
```

52
53
13

54
55
56
57
58

MODEL T3 = DURATION TRT;
MEANS TRT/DUNCAN LINE;

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TITLE1 "MOUSE IMMUNOTOX THYROID HORMONE DATA";
TITLE2 "PROC GLM - COLLAPSED ACROSS STUDIES";
TITLE3 "STEP-DOWN MODEL FOR T3";

ENDSAS;

NOTE: Means from the MEANS statement are not adjusted for other terms in the model. For adjusted means, use the LSMEANS statement.
NOTE: The PROCEDURE GLM printed pages 35-37.

NOTE: SAS Institute Inc., SAS Campus Drive, Cary, NC USA 27513-2414

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OBS	DUR	DAY	LETTER	DURATION	STUDY	TRT	ANIM	T4	TSH	T3
1	120	d	B	120	B	Control	1B	3.5	6.20	.
2	120	d	B	120	B	Control	2B	4.1	7.10	.
3	120	d	B	120	B	Control	3B	3.3	7.10	.
4	120	d	B	120	B	Control	4B	2.5	8.00	.
5	120	d	B	120	B	Control	5B	3.0	6.20	.
6	120	d	B	120	B	Control	6B	2.5	8.00	.
7	120	d	B	120	B	0.1-mg/k	7B	3.1	8.00	.
8	120	d	B	120	B	0.1-mg/k	8B	3.1	7.10	.
9	120	d	B	120	B	0.1-mg/k	9B	3.5	8.00	.
10	120	d	B	120	B	0.1-mg/k	10B	2.8	8.80	.
11	120	d	B	120	B	0.1-mg/k	11B	3.5	3.40	.
12	120	d	B	120	B	0.1-mg/k	12B	3.0	6.20	.
13	120	d	B	120	B	1.0-mg/k	13B	3.1	6.20	.
14	120	d	B	120	B	1.0-mg/k	14B	3.3	5.45	.
15	120	d	B	120	B	1.0-mg/k	15B	3.7	5.45	.
16	120	d	B	120	B	1.0-mg/k	16B	3.5	10.65	.
17	120	d	B	120	B	1.0-mg/k	17B	2.8	6.20	.
18	120	d	B	120	B	1.0-mg/k	18B	3.1	5.45	.
19	120	d	B	120	B	3.0-mg/k	19B	2.7	7.10	.
20	120	d	B	120	B	3.0-mg/k	20B	2.5	8.00	.
21	120	d	B	120	B	3.0-mg/k	21B	2.5	8.80	.
22	120	d	B	120	B	3.0-mg/k	22B	2.5	3.40	.
23	120	d	B	120	B	3.0-mg/k	23B	3.3	8.80	.
24	120	d	B	120	B	3.0-mg/k	24B	2.7	9.80	.
25	120	d	B	120	B	30.0-mg/	25B	2.7	6.20	.
26	120	d	B	120	B	30.0-mg/	26B	3.5	7.10	.
27	120	d	B	120	B	30.0-mg/	27B	3.7	9.80	.
28	120	d	B	120	B	30.0-mg/	28B	3.1	5.45	.
29	120	d	B	120	B	30.0-mg/	29B	3.1	3.40	.
30	120	d	B	120	B	30.0-mg/	30B	3.5	8.80	.
31	120	d	E	120	E	Control	1	3.7	.	103.0
32	120	d	E	120	E	Control	2	3.5	.	171.0
33	120	d	E	120	E	Control	3	3.3	.	108.0
34	120	d	E	120	E	Control	4	4.1	.	136.5
35	120	d	E	120	E	Control	5	2.7	.	104.5
36	120	d	E	120	E	Control	6	3.1	.	155.8
37	120	d	E	120	E	0.1-mg/k	7	2.4	.	86.5
38	120	d	E	120	E	0.1-mg/k	8	2.8	.	131.5
39	120	d	E	120	E	0.1-mg/k	9	3.9	.	103.0
40	120	d	E	120	E	0.1-mg/k	10	3.5	.	124.5
41	120	d	E	120	E	0.1-mg/k	11	4.1	.	92.0

42	120	d	E	120	E	0.1-mg/k	12	3.5	.	151.0
43	120	d	E	120	E	1.0-mg/k	13	3.7	.	117.5
44	120	d	E	120	E	1.0-mg/k	14	2.7	.	129.0
45	120	d	E	120	E	1.0-mg/k	15	3.5	.	116.5
46	120	d	E	120	E	1.0-mg/k	16	2.7	.	134.0
47	120	d	E	120	E	1.0-mg/k	17	3.5	.	119.0
48	120	d	E	120	E	1.0-mg/k	18	3.3	.	93.0
49	120	d	E	120	E	3.0-mg/k	19	2.8	.	67.5
50	120	d	E	120	E	3.0-mg/k	20	3.1	.	105.5
51	120	d	E	120	E	3.0-mg/k	21	3.1	.	97.0
52	120	d	E	120	E	3.0-mg/k	22	3.0	.	90.0
53	120	d	E	120	E	3.0-mg/k	23	4.5	.	125.0
54	120	d	E	120	E	3.0-mg/k	24	3.1	.	112.0
55	120	d	E	120	E	30.0-mg/	25	3.3	.	108.0
56	120	d	E	120	E	30.0-mg/	26	3.1	.	97.0

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OBS	DUR	DAY	LETTER	DURATION	STUDY	TRT	ANIM	T4	TSH	T3
57	120	d	E	120	E	30.0-mg/	27	3.0	.	129.5
58	120	d	E	120	E	30.0-mg/	28	3.1	.	101.5
59	120	d	E	120	E	30.0-mg/	29	4.7	.	116.5
60	120	d	E	120	E	30.0-mg/	30	3.9	.	167.0
61	90	d	A	90	A	Control	1A	3.7	7.10	.
62	90	d	A	90	A	Control	2A	5.0	12.65	.
63	90	d	A	90	A	Control	3A	3.7	13.65	.
64	90	d	A	90	A	Control	4A	3.1	11.65	.
65	90	d	A	90	A	Control	5A	3.1	8.80	.
66	90	d	A	90	A	Control	6A	2.7	8.00	.
67	90	d	A	90	A	0.1-mg/k	7A	2.8	7.10	.
68	90	d	A	90	A	0.1-mg/k	8A	3.7	8.00	.
69	90	d	A	90	A	0.1-mg/k	9A	3.3	7.10	.
70	90	d	A	90	A	0.1-mg/k	10A	2.4	8.00	.
71	90	d	A	90	A	0.1-mg/k	11A	3.5	8.00	.
72	90	d	A	90	A	0.1-mg/k	12A	2.7	8.00	.
73	90	d	A	90	A	1.0-mg/k	13A	3.1	7.10	.
74	90	d	A	90	A	1.0-mg/k	14A	2.7	8.00	.
75	90	d	A	90	A	1.0-mg/k	15A	2.8	8.80	.
76	90	d	A	90	A	1.0-mg/k	16A	3.0	8.80	.
77	90	d	A	90	A	1.0-mg/k	17A	3.7	7.10	.
78	90	d	A	90	A	1.0-mg/k	18A	3.3	8.00	.
79	90	d	A	90	A	3.0-mg/k	19A	3.1	5.45	.
80	90	d	A	90	A	3.0-mg/k	20A	3.5	5.45	.
81	90	d	A	90	A	3.0-mg/k	21A	2.8	7.10	.
82	90	d	A	90	A	3.0-mg/k	22A	2.5	8.00	.
83	90	d	A	90	A	3.0-mg/k	23A	2.8	7.10	.
84	90	d	A	90	A	3.0-mg/k	24A	2.8	8.80	.
85	90	d	A	90	A	30.0-mg/	25A	1.8	5.45	.
86	90	d	A	90	A	30.0-mg/	26A	2.1	11.65	.
87	90	d	A	90	A	30.0-mg/	27A	3.7	8.00	.
88	90	d	A	90	A	30.0-mg/	28A	2.1	8.80	.
89	90	d	A	90	A	30.0-mg/	29A	2.8	7.10	.
90	90	d	A	90	A	30.0-mg/	30A	2.8	9.80	.
91	90	d	A	90	D	Control	1D	3.0	7.10	.
92	90	d	A	90	D	Control	2D	4.1	10.65	.
93	90	d	A	90	D	Control	3D	3.3	8.80	.
94	90	d	A	90	D	Control	4D	4.3	10.65	.
95	90	d	A	90	D	Control	5D	3.7	.	.
96	90	d	A	90	D	Control	6D	3.5	.	.

97	90	d	A	90	D	0.1-mg/k	7D	2.8	8.00	.
98	90	d	A	90	D	0.1-mg/k	8D	3.0	10.65	.
99	90	d	A	90	D	0.1-mg/k	9D	3.9	8.00	.
100	90	d	A	90	D	0.1-mg/k	10D	2.5	7.10	.
101	90	d	A	90	D	0.1-mg/k	11D	2.5	.	.
102	90	d	A	90	D	0.1-mg/k	12D	3.1	.	.
103	90	d	A	90	D	1.0-mg/k	13D	2.4	8.00	.
104	90	d	A	90	D	1.0-mg/k	14D	.	.	.
105	90	d	A	90	D	1.0-mg/k	15D	.	.	.
106	90	d	A	90	D	1.0-mg/k	16D	2.1	9.80	.
107	90	d	A	90	D	1.0-mg/k	17D	3.0	8.80	.
108	90	d	A	90	D	1.0-mg/k	18D	2.4	6.20	.
109	90	d	A	90	D	3.0-mg/k	19D	2.7	8.80	.
110	90	d	A	90	D	3.0-mg/k	20D	3.3	9.80	.
111	90	d	A	90	D	3.0-mg/k	21D	2.5	12.65	.
112	90	d	A	90	D	3.0-mg/k	22D	2.4	7.10	.

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OBS	DUR	DAY	LETTER	DURATION	STUDY	TRT	ANIM	T4	TSH	T3
113	90	d	A	90	D	3.0-mg/k	23D	2.30	10.65	.
114	90	d	A	90	D	3.0-mg/k	24D	3.10	.	.
115	90	d	A	90	D	30.0-mg/	25D	2.10	9.80	.
116	90	d	A	90	D	30.0-mg/	26D	2.50	6.20	.
117	90	d	A	90	D	30.0-mg/	27D	2.40	.	.
118	90	d	A	90	D	30.0-mg/	28D	2.50	.	.
119	90	d	A	90	D	30.0-mg/	29D	1.90	.	.
120	90	d	A	90	D	30.0-mg/	30D	2.50	.	.
121	14	d	C	14	C	Control	1C	3.30	.	.
122	14	d	C	14	C	Control	2C	4.30	.	.
123	14	d	C	14	C	Control	3C	3.70	.	.
124	14	d	C	14	C	Control	4C	3.80	.	.
125	14	d	C	14	C	Control	5C	2.80	.	.
126	14	d	C	14	C	Control	6C	3.00	.	.
127	14	d	C	14	C	0.1-mg/k	7C	2.50	.	.
128	14	d	C	14	C	0.1-mg/k	8C	3.20	.	.
129	14	d	C	14	C	0.1-mg/k	9C	2.20	.	.
130	14	d	C	14	C	0.1-mg/k	10C	3.20	.	.
131	14	d	C	14	C	0.1-mg/k	11C	3.30	.	.
132	14	d	C	14	C	0.1-mg/k	12C	3.50	.	.
133	14	d	C	14	C	1.0-mg/k	13C	2.10	.	.
134	14	d	C	14	C	1.0-mg/k	14C	3.00	.	.
135	14	d	C	14	C	1.0-mg/k	15C	3.00	.	.
136	14	d	C	14	C	1.0-mg/k	16C	3.20	.	.
137	14	d	C	14	C	1.0-mg/k	17C	2.80	.	.
138	14	d	C	14	C	1.0-mg/k	18C	2.50	.	.
139	14	d	C	14	C	3.0-mg/k	19C	2.40	.	.
140	14	d	C	14	C	3.0-mg/k	20C	2.80	.	.
141	14	d	C	14	C	3.0-mg/k	21C	2.80	.	.
142	14	d	C	14	C	3.0-mg/k	22C	3.20	.	.
143	14	d	C	14	C	3.0-mg/k	23C	2.20	.	.
144	14	d	C	14	C	3.0-mg/k	24C	2.40	.	.
145	14	d	C	14	C	30.0-mg/	25C	2.70	.	.
146	14	d	C	14	C	30.0-mg/	26C	2.00	.	.
147	14	d	C	14	C	30.0-mg/	27C	2.50	.	.
148	14	d	C	14	C	30.0-mg/	28C	3.00	.	.
149	14	d	C	14	C	30.0-mg/	29C	2.80	.	.
150	14	d	C	14	C	30.0-mg/	30C	3.30	.	.
151	14	d	I	14	I	Control	1I	3.40	.	.

152	14	d	I	14	I	Control	2I	3.40	.	.
153	14	d	I	14	I	Control	3I	3.10	.	.
154	14	d	I	14	I	Control	4I	3.25	.	.
155	14	d	I	14	I	Control	5I	3.95	.	.
156	14	d	I	14	I	Control	6I	2.75	.	.
157	14	d	I	14	I	0.1-mg/k	7I	3.55	.	.
158	14	d	I	14	I	0.1-mg/k	8I	3.40	.	.
159	14	d	I	14	I	0.1-mg/k	9I	3.95	.	.
160	14	d	I	14	I	0.1-mg/k	10I	3.55	.	.
161	14	d	I	14	I	0.1-mg/k	11I	2.95	.	.
162	14	d	I	14	I	0.1-mg/k	12I	3.40	.	.
163	14	d	I	14	I	1.0-mg/k	13I	3.40	.	.
164	14	d	I	14	I	1.0-mg/k	14I	3.10	.	.
165	14	d	I	14	I	1.0-mg/k	15I	3.25	.	.
166	14	d	I	14	I	1.0-mg/k	16I	3.70	.	.
167	14	d	I	14	I	1.0-mg/k	17I	3.40	.	.
168	14	d	I	14	I	1.0-mg/k	18I	3.25	.	.

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OBS	DUR	DAY	LETTER	DURATION	STUDY	TRT	ANIM	T4	TSH	T3
169	14	d	I	14	I	3.0-mg/k	19I	2.75	.	.
170	14	d	I	14	I	3.0-mg/k	20I	3.40	.	.
171	14	d	I	14	I	3.0-mg/k	21I	2.95	.	.
172	14	d	I	14	I	3.0-mg/k	22I	3.40	.	.
173	14	d	I	14	I	3.0-mg/k	23I	2.95	.	.
174	14	d	I	14	I	3.0-mg/k	24I	3.10	.	.
175	14	d	I	14	I	30.0-mg/	25I	3.40	.	.
176	14	d	I	14	I	30.0-mg/	26I	2.60	.	.
177	14	d	I	14	I	30.0-mg/	27I	2.15	.	.
178	14	d	I	14	I	30.0-mg/	28I	2.15	.	.
179	14	d	I	14	I	30.0-mg/	29I	3.10	.	.
180	14	d	I	14	I	30.0-mg/	30I	2.95	.	.
181	14	d	J	14	J	Control	1J	2.75	.	.
182	14	d	J	14	J	Control	2J	3.90	.	.
183	14	d	J	14	J	Control	3J	2.95	.	.
184	14	d	J	14	J	Control	4J	3.40	.	.
185	14	d	J	14	J	Control	5J	3.90	.	.
186	14	d	J	14	J	Control	6J	3.90	.	.
187	14	d	J	14	J	0.1-mg/k	7J	3.90	.	.
188	14	d	J	14	J	0.1-mg/k	8J	2.95	.	.
189	14	d	J	14	J	0.1-mg/k	9J	3.40	.	.
190	14	d	J	14	J	0.1-mg/k	10J	3.40	.	.
191	14	d	J	14	J	0.1-mg/k	11J	3.70	.	.
192	14	d	J	14	J	0.1-mg/k	12J	3.40	.	.
193	14	d	J	14	J	1.0-mg/k	13J	2.95	.	.
194	14	d	J	14	J	1.0-mg/k	14J	3.70	.	.
195	14	d	J	14	J	1.0-mg/k	15J	3.10	.	.
196	14	d	J	14	J	1.0-mg/k	16J	3.90	.	.
197	14	d	J	14	J	1.0-mg/k	17J	3.10	.	.
198	14	d	J	14	J	1.0-mg/k	18J	3.55	.	.
199	14	d	J	14	J	3.0-mg/k	19J	3.25	.	.
200	14	d	J	14	J	3.0-mg/k	20J	3.55	.	.
201	14	d	J	14	J	3.0-mg/k	21J	3.25	.	.
202	14	d	J	14	J	3.0-mg/k	22J	3.70	.	.
203	14	d	J	14	J	3.0-mg/k	23J	3.90	.	.
204	14	d	J	14	J	3.0-mg/k	24J	3.40	.	.
205	14	d	J	14	J	30.0-mg/	25J	3.25	.	.
206	14	d	J	14	J	30.0-mg/	26J	3.25	.	.

207	14	d	J	14	J	30.0-mg/	27J	3.40	.	.
208	14	d	J	14	J	30.0-mg/	28J	2.95	.	.
209	14	d	J	14	J	30.0-mg/	29J	2.95	.	.
210	14	d	J	14	J	30.0-mg/	30J	3.25	.	.
211	14	d	G	14	G	Control	1G	2.70	.	.
212	14	d	G	14	G	Control	2G	3.00	.	.
213	14	d	G	14	G	Control	3G	2.80	.	.
214	14	d	G	14	G	Control	4G	3.00	.	.
215	14	d	G	14	G	Control	5G	3.50	.	.
216	14	d	G	14	G	Control	6G	2.40	.	.
217	14	d	G	14	G	0.1-mg/k	7G	2.20	.	.
218	14	d	G	14	G	0.1-mg/k	8G	2.70	.	.
219	14	d	G	14	G	0.1-mg/k	9G	3.00	.	.
220	14	d	G	14	G	0.1-mg/k	10G	3.60	.	.
221	14	d	G	14	G	0.1-mg/k	11G	2.80	.	.
222	14	d	G	14	G	0.1-mg/k	12G	2.40	.	.
223	14	d	G	14	G	1.0-mg/k	13G	3.30	.	.
224	14	d	G	14	G	1.0-mg/k	14G	3.00	.	.

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OBS	DUR	DAY	LETTER	DURATION	STUDY	TRT	ANIM	T4	TSH	T3
225	14	d	G	14	G	1.0-mg/k	15G	4.1	.	.
226	14	d	G	14	G	1.0-mg/k	16G	3.7	.	.
227	14	d	G	14	G	1.0-mg/k	17G	3.5	.	.
228	14	d	G	14	G	1.0-mg/k	18G	3.9	.	.
229	14	d	G	14	G	3.0-mg/k	19G	3.3	.	.
230	14	d	G	14	G	3.0-mg/k	20G	3.3	.	.
231	14	d	G	14	G	3.0-mg/k	21G	3.0	.	.
232	14	d	G	14	G	3.0-mg/k	22G	3.9	.	.
233	14	d	G	14	G	3.0-mg/k	23G	3.5	.	.
234	14	d	G	14	G	3.0-mg/k	24G	3.0	.	.
235	14	d	G	14	G	30.0-mg/	25G	2.8	.	.
236	14	d	G	14	G	30.0-mg/	26G	3.3	.	.
237	14	d	G	14	G	30.0-mg/	27G	3.3	.	.
238	14	d	G	14	G	30.0-mg/	28G	2.0	.	.
239	14	d	G	14	G	30.0-mg/	29G	2.8	.	.
240	14	d	G	14	G	30.0-mg/	30G	2.5	.	.
241	14	d	K	14	K	Control	1K	3.7	.	.
242	14	d	K	14	K	Control	2K	4.8	.	.
243	14	d	K	14	K	Control	3K	4.1	.	.
244	14	d	K	14	K	Control	4K	3.5	.	.
245	14	d	K	14	K	Control	5K	3.5	.	.
246	14	d	K	14	K	Control	6K	3.1	.	.
247	14	d	K	14	K	0.1-mg/k	7K	3.1	.	.
248	14	d	K	14	K	0.1-mg/k	8K	4.8	.	.
249	14	d	K	14	K	0.1-mg/k	9K	3.5	.	.
250	14	d	K	14	K	0.1-mg/k	10K	3.7	.	.
251	14	d	K	14	K	0.1-mg/k	11K	4.5	.	.
252	14	d	K	14	K	0.1-mg/k	12K	4.1	.	.
253	14	d	K	14	K	1.0-mg/k	13K	4.5	.	.
254	14	d	K	14	K	1.0-mg/k	14K	4.1	.	.
255	14	d	K	14	K	1.0-mg/k	15K	4.5	.	.
256	14	d	K	14	K	1.0-mg/k	16K	4.5	.	.
257	14	d	K	14	K	1.0-mg/k	17K	4.3	.	.
258	14	d	K	14	K	1.0-mg/k	18K	3.5	.	.
259	14	d	K	14	K	3.0-mg/k	19K	4.1	.	.
260	14	d	K	14	K	3.0-mg/k	20K	4.1	.	.
261	14	d	K	14	K	3.0-mg/k	21K	4.1	.	.

262	14	d	K	14	K	3.0-mg/k	22K	4.3	.	.
263	14	d	K	14	K	3.0-mg/k	23K	3.5	.	.
264	14	d	K	14	K	3.0-mg/k	24K	3.5	.	.
265	14	d	K	14	K	30.0-mg/	25K	2.5	.	.
266	14	d	K	14	K	30.0-mg/	26K	2.9	.	.
267	14	d	K	14	K	30.0-mg/	27K	3.3	.	.
268	14	d	K	14	K	30.0-mg/	28K	3.1	.	.
269	14	d	K	14	K	30.0-mg/	29K	3.1	.	.
270	14	d	K	14	K	30.0-mg/	30K	3.7	.	.
271	14	d	T	14	T	Control	1T	.	.	144.0
272	14	d	T	14	T	Control	2T	.	.	122.0
273	14	d	T	14	T	Control	3T	.	.	120.5
274	14	d	T	14	T	Control	4T	.	.	113.5
275	14	d	T	14	T	Control	5T	.	.	100.5
276	14	d	T	14	T	Control	6T	.	.	148.5
277	14	d	T	14	T	0.1-mg/k	7T	.	.	98.0
278	14	d	T	14	T	0.1-mg/k	8T	.	.	131.5
279	14	d	T	14	T	0.1-mg/k	9T	.	.	115.0
280	14	d	T	14	T	0.1-mg/k	10T	.	.	131.0

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OBS	DUR	DAY	LETTER	DURATION	STUDY	TRT	ANIM	T4	TSH	T3
281	14	d	T	14	T	0.1-mg/k	11T	.	.	75.0
282	14	d	T	14	T	0.1-mg/k	12T	.	.	114.5
283	14	d	T	14	T	1.0-mg/k	13T	.	.	133.5
284	14	d	T	14	T	1.0-mg/k	14T	.	.	135.0
285	14	d	T	14	T	1.0-mg/k	15T	.	.	130.0
286	14	d	T	14	T	1.0-mg/k	16T	.	.	124.5
287	14	d	T	14	T	1.0-mg/k	17T	.	.	139.0
288	14	d	T	14	T	1.0-mg/k	18T	.	.	140.0
289	14	d	T	14	T	3.0-mg/k	19T	.	.	108.0
290	14	d	T	14	T	3.0-mg/k	20T	.	.	109.5
291	14	d	T	14	T	3.0-mg/k	21T	.	.	124.5
292	14	d	T	14	T	3.0-mg/k	22T	.	.	104.5
293	14	d	T	14	T	3.0-mg/k	23T	.	.	175.0
294	14	d	T	14	T	3.0-mg/k	24T	.	.	125.0
295	14	d	T	14	T	30.0-mg/	25T	.	.	100.5
296	14	d	T	14	T	30.0-mg/	26T	.	.	103.0
297	14	d	T	14	T	30.0-mg/	27T	.	.	155.5
298	14	d	T	14	T	30.0-mg/	28T	.	.	122.0
299	14	d	T	14	T	30.0-mg/	29T	.	.	108.0
300	14	d	T	14	T	30.0-mg/	30T	.	.	113.5
301	90	d	N	90	N	Control	1N	.	.	112.0
302	90	d	N	90	N	Control	2N	.	.	116.5
303	90	d	N	90	N	Control	3N	.	.	113.5
304	90	d	N	90	N	Control	4N	.	.	121.0
305	90	d	N	90	N	Control	5N	.	.	117.5
306	90	d	N	90	N	Control	6N	.	.	112.5
307	90	d	N	90	N	0.1-mg/k	7N	.	.	99.0
308	90	d	N	90	N	0.1-mg/k	8N	.	.	82.0
309	90	d	N	90	N	0.1-mg/k	9N	.	.	99.0
310	90	d	N	90	N	0.1-mg/k	10N	.	.	72.0
311	90	d	N	90	N	0.1-mg/k	11N	.	.	82.0
312	90	d	N	90	N	0.1-mg/k	12N	.	.	101.5
313	90	d	N	90	N	1.0-mg/k	13N	.	.	113.0
314	90	d	N	90	N	1.0-mg/k	14N	.	.	93.5
315	90	d	N	90	N	1.0-mg/k	15N	.	.	91.0
316	90	d	N	90	N	1.0-mg/k	16N	.	.	103.5

317	90	d	N	90	N	1.0-mg/k	17N	.	.	118.0
318	90	d	N	90	N	1.0-mg/k	18N	.	.	95.5
319	90	d	N	90	N	3.0-mg/k	19N	.	.	.
320	90	d	N	90	N	3.0-mg/k	20N	.	.	65.0
321	90	d	N	90	N	3.0-mg/k	21N	.	.	62.0
322	90	d	N	90	N	3.0-mg/k	22N	.	.	112.0
323	90	d	N	90	N	3.0-mg/k	23N	.	.	102.0
324	90	d	N	90	N	3.0-mg/k	24N	.	.	124.5
325	90	d	N	90	N	30.0-mg/	25N	.	.	72.5
326	90	d	N	90	N	30.0-mg/	26N	.	.	90.5
327	90	d	N	90	N	30.0-mg/	27N	.	.	.
328	90	d	N	90	N	30.0-mg/	28N	.	.	120.5
329	90	d	N	90	N	30.0-mg/	29N	.	.	114.0
330	90	d	N	90	N	30.0-mg/	30N	.	.	108.0

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----- TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	54	3.2453704	0.0765507	2.2000000	4.8000000	0.5625304	0.3164404	17.3333184
T3	18	104.9444444	5.2588066	72.0000000	151.0000000	22.3112270	497.7908497	21.2600363
TSH	16	7.5906250	0.3686750	3.4000000	10.6500000	1.4746998	2.1747396	19.4279105

----- TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	52	3.2942308	0.0785384	2.1000000	4.5000000	0.5663483	0.3207504	17.1921253
T3	18	118.0833333	3.9260422	91.0000000	140.0000000	16.6567863	277.4485294	14.1059587
TSH	16	7.5000000	0.4032679	5.4500000	10.6500000	1.6130716	2.6020000	21.5076214

----- TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	54	3.1222222	0.0730640	2.2000000	4.5000000	0.5369082	0.2882704	17.1963488
T3	17	106.4117647	6.5606945	62.0000000	175.0000000	27.0504363	731.7261029	25.4205316
TSH	17	8.0470588	0.5252883	3.4000000	12.6500000	2.1658190	4.6907721	26.9144177

----- TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	54	2.9055556	0.0774288	1.8000000	4.7000000	0.5689834	0.3237421	19.5826036
T3	17	113.3823529	5.4262315	72.5000000	167.0000000	22.3729255	500.5477941	19.7322819
TSH	14	7.6821429	0.5984092	3.4000000	11.6500000	2.2390423	5.0133104	29.1460644

----- TRT=Control -----

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DURATION=14 TRT=0.1-mg/k

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	54	3.4101852	0.0772449	2.4000000	5.0000000	0.5676316	0.3222056	16.6451838
T3	18	123.3777778	4.6511546	100.5000000	171.0000000	19.7331777	389.3983007	15.9941101
TSH	16	8.8531250	0.5783142	6.2000000	13.6500000	2.3132566	5.3511563	26.1292666
Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	30	3.3283333	0.1105286	2.2000000	4.8000000	0.6053901	0.3664971	18.189853
T3	6	110.8333333	8.7812932	75.0000000	131.5000000	21.5096877	462.6666667	19.4072371
TSH	0	.	.	.	.	.	.	.

DURATION=14 TRT=1.0-mg/k

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	30	3.4633333	0.1073166	2.1000000	4.5000000	0.5877974	0.3455057	16.9720126
T3	6	133.6666667	2.3652578	124.5000000	140.0000000	5.7936747	33.5666667	4.3344200
TSH	0	.	.	.	.	.	.	.

DURATION=14 TRT=3.0-mg/k

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	30	3.3000000	0.0966389	2.2000000	4.3000000	0.5293132	0.2801724	16.0397925
T3	6	124.4166667	10.7202431	104.5000000	175.0000000	26.2591254	689.5416667	21.1057940
TSH	0	.	.	.	.	.	.	.

DURATION=14 TRT=30.0-mg/k

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	30	2.9000000	0.0807294	2.0000000	3.7000000	0.4421733	0.1955172	15.2473557
T3	6	117.0833333	8.3040318	100.5000000	155.5000000	20.3406408	413.7416667	17.3727893
TSH	0	.	.	.	.	.	.	.

DURATION=14 TRT=Control

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	30	3.3883333	0.0995878	2.4000000	4.8000000	0.5454646	0.2975316	16.0983152
T3	6	124.8333333	7.4717988	100.5000000	148.5000000	18.3020946	334.9666667	14.6612240
TSH	0

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----- DURATION=90 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	12	3.0166667	0.1424001	2.4000000	3.9000000	0.4932883	0.2433333	16.3520979
T3	6	89.2500000	4.9761933	72.0000000	101.5000000	12.1891345	148.5750000	13.6572936
TSH	10	7.9950000	0.3240756	7.1000000	10.6500000	1.0248171	1.0502500	12.8182246

----- DURATION=90 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	10	2.8500000	0.1500000	2.1000000	3.7000000	0.4743416	0.2250000	16.6435666
T3	6	102.4166667	4.5229354	91.0000000	118.0000000	11.0788838	122.7416667	10.8174618
TSH	10	8.0600000	0.3330666	6.2000000	9.8000000	1.0532489	1.1093333	13.0676047

----- DURATION=90 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	12	2.8166667	0.1071909	2.3000000	3.5000000	0.3713203	0.1378788	13.1829703
T3	5	93.1000000	12.6079340	62.0000000	124.5000000	28.1921975	794.8000000	30.2816300
TSH	11	8.2636364	0.6594450	5.4500000	12.6500000	2.1871318	4.7835455	26.4669413

----- DURATION=90 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	12	2.4333333	0.1483921	1.8000000	3.7000000	0.5140452	0.2642424	21.1251435
T3	5	101.1000000	8.7198050	72.5000000	120.5000000	19.4980768	380.1750000	19.2859316
TSH	8	8.3500000	0.7321080	5.4500000	11.6500000	2.0707142	4.2878571	24.7989720

----- DURATION=90 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	12	3.6000000	0.1846372	2.7000000	5.0000000	0.6396021	0.4090909	17.7667264
T3	6	115.5000000	1.4200939	112.0000000	121.0000000	3.4785054	12.1000000	3.0116930
TSH	10	9.9050000	0.7266533	7.1000000	13.6500000	2.2978795	5.2802500	23.1991868

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----- DURATION=120 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	12	3.2666667	0.1410638	2.4000000	4.1000000	0.4886593	0.2387879	14.9589571
T3	6	114.7500000	10.2361695	86.5000000	151.0000000	25.0733923	628.6750000	21.8504508
TSH	6	6.9166667	0.7917982	3.4000000	8.8000000	1.9395017	3.7616667	28.0409878

----- DURATION=120 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	12	3.2416667	0.1047785	2.7000000	3.7000000	0.3629634	0.1317424	11.1968142
T3	6	118.1666667	5.7888782	93.0000000	134.0000000	14.1797978	201.0666667	11.9998289
TSH	6	6.5666667	0.8303279	5.4500000	10.6500000	2.0338797	4.1366667	30.9727874

----- DURATION=120 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	12	2.9833333	0.1589899	2.5000000	4.5000000	0.5507571	0.3033333	18.4611303
T3	6	99.5000000	8.0890873	67.5000000	125.0000000	19.8141364	392.6000000	19.9137049
TSH	6	7.6500000	0.9265528	3.4000000	9.8000000	2.2695815	5.1510000	29.6677315

----- DURATION=120 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	12	3.3916667	0.1524836	2.7000000	4.7000000	0.5282188	0.2790152	15.5740201
T3	6	119.9166667	10.5304453	97.0000000	167.0000000	25.7942177	665.3416667	21.5101190
TSH	6	6.7916667	0.9457287	3.4000000	9.8000000	2.3165528	5.3664167	34.1087522

----- DURATION=120 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	12	3.2750000	0.1576941	2.5000000	4.1000000	0.5462683	0.2984091	16.6799491
T3	6	129.8000000	11.9050409	103.0000000	171.0000000	29.1612757	850.3800000	22.4663141
TSH	6	7.1000000	0.3286335	6.2000000	8.0000000	0.8049845	0.6480000	11.3378095

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----- STUDY=A DURATION=90 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.0666667	0.2076322	2.4000000	3.7000000	0.5085928	0.2586667	16.5845488
T3	0	.	.	.	.	.	.	.
TSH	6	7.7000000	0.1897367	7.1000000	8.0000000	0.4647580	0.2160000	6.0358182

----- STUDY=A DURATION=90 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.1000000	0.1483240	2.7000000	3.7000000	0.3633180	0.1320000	11.7199369

T3	0	.	.	.	.	.	.	.
TSH	6	7.9666667	0.3105551	7.1000000	8.8000000	0.7607014	0.5786667	9.5485535

----- STUDY=A DURATION=90 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.9166667	0.1400397	2.5000000	3.5000000	0.3430258	0.1176667	11.7608829
T3	0	.	.	.	.	.	.	.
TSH	6	6.9833333	0.5496464	5.4500000	8.8000000	1.3463531	1.8126667	19.2795193

----- STUDY=A DURATION=90 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.5500000	0.2837252	1.8000000	3.7000000	0.6949820	0.4830000	27.2541966
T3	0	.	.	.	.	.	.	.
TSH	6	8.4666667	0.8795517	5.4500000	11.6500000	2.1544528	4.6416667	25.4462924

----- STUDY=A DURATION=90 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.5500000	0.3304038	2.7000000	5.0000000	0.8093207	0.6550000	22.7977663
T3	0	.	.	.	.	.	.	.
TSH	6	10.3083333	1.1007132	7.1000000	13.6500000	2.6961856	7.2694167	26.1553977

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----- STUDY=B DURATION=120 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.1666667	0.1145038	2.8000000	3.5000000	0.2804758	0.0786667	8.8571301
T3	0	.	.	.	.	.	.	.
TSH	6	6.9166667	0.7917982	3.4000000	8.8000000	1.9395017	3.7616667	28.0409878

----- STUDY=B DURATION=120 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.2500000	0.1310216	2.8000000	3.7000000	0.3209361	0.1030000	9.8749579
T3	0	.	.	.	.	.	.	.
TSH	6	6.5666667	0.8303279	5.4500000	10.6500000	2.0338797	4.1366667	30.9727874

----- STUDY=B DURATION=120 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
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T4	6	2.7000000	0.1264911	2.5000000	3.3000000	0.3098387	0.0960000	11.4755062
T3	0
TSH	6	7.6500000	0.9265528	3.4000000	9.8000000	2.2695815	5.1510000	29.6677315

----- STUDY=B DURATION=120 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.2666667	0.1498147	2.7000000	3.7000000	0.3669696	0.1346667	11.2337624
T3	0	.	.	.	.	.	.	.
TSH	6	6.7916667	0.9457287	3.4000000	9.8000000	2.3165528	5.3664167	34.1087522

----- STUDY=B DURATION=120 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.1500000	0.2526526	2.5000000	4.1000000	0.6188699	0.3830000	19.6466647
T3	0	.	.	.	.	.	.	.
TSH	6	7.1000000	0.3286335	6.2000000	8.0000000	0.8049845	0.6480000	11.3378095

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----- STUDY=C DURATION=14 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.9833333	0.2088327	2.2000000	3.5000000	0.5115336	0.2616667	17.1463791
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=C DURATION=14 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.7666667	0.1646545	2.1000000	3.2000000	0.4033196	0.1626667	14.5778154
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=C DURATION=14 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.6333333	0.1498147	2.2000000	3.2000000	0.3669696	0.1346667	13.9355534
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=C DURATION=14 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.7166667	0.1815060	2.0000000	3.3000000	0.4445972	0.1976667	16.3655410
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=C DURATION=14 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.4833333	0.2271808	2.8000000	4.3000000	0.5564770	0.3096667	15.9754167
T3	0
TSH	0

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----- STUDY=D DURATION=90 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.9666667	0.2123938	2.5000000	3.9000000	0.5202563	0.2706667	17.5367308
T3	0	.	.	.	.	.	.	.
TSH	4	8.4375000	0.7674023	7.1000000	10.6500000	1.5348045	2.3556250	18.1902761

----- STUDY=D DURATION=90 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	4	2.4750000	0.1887459	2.1000000	3.0000000	0.3774917	0.1425000	15.2521908
T3	0	.	.	.	.	.	.	.
TSH	4	8.2000000	0.7615773	6.2000000	9.8000000	1.5231546	2.3200000	18.5750564

----- STUDY=D DURATION=90 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.7166667	0.1641476	2.3000000	3.3000000	0.4020779	0.1616667	14.8004148
T3	0	.	.	.	.	.	.	.
TSH	5	9.8000000	0.9256079	7.1000000	12.6500000	2.0697222	4.2837500	21.1196143

----- STUDY=D DURATION=90 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.3166667	0.1046157	1.9000000	2.5000000	0.2562551	0.0656667	11.0613704
T3	0	.	.	.	.	.	.	.
TSH	2	8.0000000	1.8000000	6.2000000	9.8000000	2.5455844	6.4800000	31.8198052

----- STUDY=D DURATION=90 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.6500000	0.1995829	3.0000000	4.3000000	0.4888763	0.2390000	13.3938702
T3	0	.	.	.	.	.	.	.
TSH	4	9.3000000	0.8531803	7.1000000	10.6500000	1.7063606	2.9116667	18.3479640

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----- STUDY=E DURATION=120 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.3666667	0.2654137	2.4000000	4.1000000	0.6501282	0.4226667	19.3107384
T3	6	114.7500000	10.2361695	86.5000000	151.0000000	25.0733923	628.6750000	21.8504508
TSH	0	.	.	.	.	.	.	.

----- STUDY=E DURATION=120 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.2333333	0.1763834	2.7000000	3.7000000	0.4320494	0.1866667	13.3623520
T3	6	118.1666667	5.7888782	93.0000000	134.0000000	14.1797978	201.0666667	11.9998289
TSH	0	.	.	.	.	.	.	.

----- STUDY=E DURATION=120 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.2666667	0.2512192	2.8000000	4.5000000	0.6153590	0.3786667	18.8375196
T3	6	99.5000000	8.0890873	67.5000000	125.0000000	19.8141364	392.6000000	19.9137049
TSH	0	.	.	.	.	.	.	.

----- STUDY=E DURATION=120 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.5166667	0.2713137	3.0000000	4.7000000	0.6645801	0.4416667	18.8980114
T3	6	119.9166667	10.5304453	97.0000000	167.0000000	25.7942177	665.3416667	21.5101190
TSH	0	.	.	.	.	.	.	.

----- STUDY=E DURATION=120 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.4000000	0.1983263	2.7000000	4.1000000	0.4857983	0.2360000	14.2881856
T3	6	129.8000000	11.9050409	103.0000000	171.0000000	29.1612757	850.3800000	22.4663141
TSH	0	.	.	.	.	.	.	.

STUDY=G DURATION=14 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.7833333	0.2006932	2.2000000	3.6000000	0.4915960	0.2416667	17.6621332
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

STUDY=G DURATION=14 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.5833333	0.1641476	3.0000000	4.1000000	0.4020779	0.1616667	11.2207796
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

STUDY=G DURATION=14 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.3333333	0.1382429	3.0000000	3.9000000	0.3386247	0.1146667	10.1587401
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

STUDY=G DURATION=14 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.7833333	0.2023473	2.0000000	3.3000000	0.4956477	0.2456667	17.8077027
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

STUDY=G DURATION=14 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.9000000	0.1505545	2.4000000	3.5000000	0.3687818	0.1360000	12.7166130
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

STUDY=I DURATION=14 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
----------	---	------	-----------	---------	---------	---------	----------	----

T4	6	3.4666667	0.1320774	2.9500000	3.9500000	0.3235223	0.1046667	9.3323735
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=I DURATION=14 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.3500000	0.0836660	3.1000000	3.7000000	0.2049390	0.0420000	6.1175825
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=I DURATION=14 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.0916667	0.1075614	2.7500000	3.4000000	0.2634704	0.0694167	8.5219546
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=I DURATION=14 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	2.7250000	0.2100595	2.1500000	3.4000000	0.5145386	0.2647500	18.8821515
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=I DURATION=14 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.3083333	0.1619756	2.7500000	3.9500000	0.3967577	0.1574167	11.9926758
T3	0
TSH	0

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----- STUDY=J DURATION=14 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.4583333	0.1319196	2.9500000	3.9000000	0.3231357	0.1044167	9.3436823
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=J DURATION=14 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.3833333	0.1574096	2.9500000	3.9000000	0.3855732	0.1486667	11.3962512
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=J DURATION=14 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.5083333	0.1060005	3.2500000	3.9000000	0.2596472	0.0674167	7.4008702
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=J DURATION=14 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.1750000	0.0750000	2.9500000	3.4000000	0.1837117	0.0337500	5.7861962
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=J DURATION=14 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.4666667	0.2120010	2.7500000	3.9000000	0.5192944	0.2696667	14.9796460
T3	0
TSH	0

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----- STUDY=K DURATION=14 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.9500000	0.2604483	3.1000000	4.8000000	0.6379655	0.4070000	16.1510257
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=K DURATION=14 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	4.2333333	0.1605546	3.5000000	4.5000000	0.3932768	0.1546667	9.2900039
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=K DURATION=14 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.9333333	0.1406335	3.5000000	4.3000000	0.3444803	0.1186667	8.7579733
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=K DURATION=14 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.1000000	0.1632993	2.5000000	3.7000000	0.4000000	0.1600000	12.9032258
T3	0	.	.	.	.	.	.	.
TSH	0	.	.	.	.	.	.	.

----- STUDY=K DURATION=14 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	6	3.7833333	0.2427848	3.1000000	4.8000000	0.5946988	0.3536667	15.7189111
T3	0
TSH	0

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----- STUDY=N DURATION=90 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	0	.	.	.	.	.	.	.
T3	6	89.2500000	4.9761933	72.0000000	101.5000000	12.1891345	148.5750000	13.6572936
TSH	0	.	.	.	.	.	.	.

----- STUDY=N DURATION=90 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	0	.	.	.	.	.	.	.
T3	6	102.4166667	4.5229354	91.0000000	118.0000000	11.0788838	122.7416667	10.8174618
TSH	0	.	.	.	.	.	.	.

----- STUDY=N DURATION=90 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	0	.	.	.	.	.	.	.
T3	5	93.1000000	12.6079340	62.0000000	124.5000000	28.1921975	794.8000000	30.2816300
TSH	0	.	.	.	.	.	.	.

----- STUDY=N DURATION=90 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	0	.	.	.	.	.	.	.
T3	5	101.1000000	8.7198050	72.5000000	120.5000000	19.4980768	380.1750000	19.2859316
TSH	0	.	.	.	.	.	.	.

----- STUDY=N DURATION=90 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	0	.	.	.	.	.	.	.
T3	6	115.5000000	1.4200939	112.0000000	121.0000000	3.4785054	12.1000000	3.0116930
TSH	0

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----- STUDY=T DURATION=14 TRT=0.1-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	0	.	.	.	.	.	.	.
T3	6	110.8333333	8.7812932	75.0000000	131.5000000	21.5096877	462.6666667	19.4072371
TSH	0	.	.	.	.	.	.	.

----- STUDY=T DURATION=14 TRT=1.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	0	.	.	.	.	.	.	.
T3	6	133.6666667	2.3652578	124.5000000	140.0000000	5.7936747	33.5666667	4.3344200
TSH	0	.	.	.	.	.	.	.

----- STUDY=T DURATION=14 TRT=3.0-mg/k -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	0	.	.	.	.	.	.	.
T3	6	124.4166667	10.7202431	104.5000000	175.0000000	26.2591254	689.5416667	21.1057940
TSH	0	.	.	.	.	.	.	.

----- STUDY=T DURATION=14 TRT=30.0-mg/ -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	0	.	.	.	.	.	.	.
T3	6	117.0833333	8.3040318	100.5000000	155.5000000	20.3406408	413.7416667	17.3727893

TSH 0

----- STUDY=T DURATION=14 TRT=Control -----

Variable	N	Mean	Std Error	Minimum	Maximum	Std Dev	Variance	CV
T4	0	.	.	.	.	.	.	.
T3	6	124.8333333	7.4717988	100.5000000	148.5000000	18.3020946	334.9666667	14.6612240
TSH	0	.	.	.	.	.	.	.

1 MOUSE IMMUNOTOX THYROID HORMONE DATA 18:18 Sunday, December 30, 2001 22
 PROC GLM - STUDY BY TRT INTERACTIONS

General Linear Models Procedure
 Class Level Information

Class	Levels	Values
DURATION	3	14 90 120
TRT	5	0.1-mg/k 1.0-mg/k 3.0-mg/k 30.0-mg/ Control

Number of observations in data set = 330

Group	Obs	Dependent Variables
1	268	T4
2	88	T3
3	79	TSH

NOTE: Variables in each group are consistent with respect to the presence or absence of missing values.

1 MOUSE IMMUNOTOX THYROID HORMONE DATA 18:18 Sunday, December 30, 2001 23
 PROC GLM - STUDY BY TRT INTERACTIONS

General Linear Models Procedure

Dependent Variable: T4

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	14	20.14201990	1.43871571	5.17	0.0001
Error	253	70.46066667	0.27850066		
Corrected Total	267	90.60268657			

R-Square	C.V.	Root MSE	T4 Mean
0.222312	16.51858	0.52773162	3.19477612

Source	DF	Type I SS	Mean Square	F Value	Pr > F
DURATION	2	4.64494289	2.32247144	8.34	0.0003
TRT	4	7.86570597	1.96642649	7.06	0.0001
DURATION*TRT	8	7.63137104	0.95392138	3.43	0.0009

Source	DF	Type III SS	Mean Square	F Value	Pr > F
DURATION	2	4.71871609	2.35935805	8.47	0.0003
TRT	4	6.72973611	1.68243403	6.04	0.0001
DURATION*TRT	8	7.63137104	0.95392138	3.43	0.0009

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MOUSE IMMUNOTOX THYROID HORMONE DATA
PROC GLM - STUDY BY TRT INTERACTIONS

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General Linear Models Procedure

Dependent Variable: T3

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	14	14338.84106061	1024.20293290	2.54	0.0052
Error	73	29479.71666667	403.83173516		
Corrected Total	87	43818.55772727			

R-Square	C.V.	Root MSE	T3 Mean
0.327232	17.73411	20.09556506	113.31590909

Source	DF	Type I SS	Mean Square	F Value	Pr > F
DURATION	2	7239.31239394	3619.65619697	8.96	0.0003
TRT	4	4487.43696062	1121.85924016	2.78	0.0330
DURATION*TRT	8	2612.09170604	326.51146326	0.81	0.5972

Source	DF	Type III SS	Mean Square	F Value	Pr > F
DURATION	2	7365.49016034	3682.74508017	9.12	0.0003
TRT	4	4479.15453748	1119.78863437	2.77	0.0333
DURATION*TRT	8	2612.09170604	326.51146326	0.81	0.5972

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MOUSE IMMUNOTOX THYROID HORMONE DATA
PROC GLM - STUDY BY TRT INTERACTIONS

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General Linear Models Procedure

Dependent Variable: TSH

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	9	71.53273849	7.94808205	2.28	0.0263

R-Square	C.V.	Root MSE	T4 Mean
0.118175	16.63670	0.54501819	3.2760000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
TRT	4	5.77210000	1.44302500	4.86	0.0010
Source	DF	Type III SS	Mean Square	F Value	Pr > F
TRT	4	5.77210000	1.44302500	4.86	0.0010

1 MOUSE IMMUNOTOX THYROID HORMONE DATA 18:18 Sunday, December 30, 2001 28
 PROC GLM - COLLAPSED ACROSS STUDIES
 ONE-WAY ANOVAS FOR T4 AT EACH DURATION

----- DURATION=14 -----

General Linear Models Procedure

Duncan's Multiple Range Test for variable: T4

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 145 MSE= 0.297045

Number of Means	2	3	4	5
Critical Range	.2781	.2927	.3025	.3096

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	TRT
A	3.4633	30	1.0-mg/k
A			
A	3.3883	30	Control
A			
A	3.3283	30	0.1-mg/k
A			
A	3.3000	30	3.0-mg/k
A			
B	2.9000	30	30.0-mg/

1 MOUSE IMMUNOTOX THYROID HORMONE DATA 18:18 Sunday, December 30, 2001 29
 PROC GLM - COLLAPSED ACROSS STUDIES
 ONE-WAY ANOVAS FOR T4 AT EACH DURATION

----- DURATION=90 -----

General Linear Models Procedure
 Class Level Information

Class	Levels	Values
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TRT 5 0.1-mg/k 1.0-mg/k 3.0-mg/k 30.0-mg/ Control

Number of observations in by group = 90

NOTE: Due to missing values, only 58 observations can be used in this analysis.

1 MOUSE IMMUNOTOX THYROID HORMONE DATA 18:18 Sunday, December 30, 2001 30
PROC GLM - COLLAPSED ACROSS STUDIES
ONE-WAY ANOVAS FOR T4 AT EACH DURATION

----- DURATION=90 -----

General Linear Models Procedure

Dependent Variable: T4

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	8.63931034	2.15982759	8.40	0.0001
Error	53	13.62500000	0.25707547		
Corrected Total	57	22.26431034			

R-Square	C.V.	Root MSE	T4 Mean
0.388034	17.20744	0.50702611	2.94655172

Source	DF	Type I SS	Mean Square	F Value	Pr > F
TRT	4	8.63931034	2.15982759	8.40	0.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
TRT	4	8.63931034	2.15982759	8.40	0.0001

1 MOUSE IMMUNOTOX THYROID HORMONE DATA 18:18 Sunday, December 30, 2001 31
PROC GLM - COLLAPSED ACROSS STUDIES
ONE-WAY ANOVAS FOR T4 AT EACH DURATION

----- DURATION=90 -----

General Linear Models Procedure

Duncan's Multiple Range Test for variable: T4

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 53 MSE= 0.257075
WARNING: Cell sizes are not equal.
Harmonic Mean of cell sizes= 11.53846

Number of Means 2 3 4 5

Critical Range .4234 .4453 .4598 .4703

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	TRT
A	3.6000	12	Control
B	3.0167	12	0.1-mg/k
B			
C B	2.8500	10	1.0-mg/k
C B			
C B	2.8167	12	3.0-mg/k
C			
C	2.4333	12	30.0-mg/

1 MOUSE IMMUNOTOX THYROID HORMONE DATA 18:18 Sunday, December 30, 2001 32
 PROC GLM - COLLAPSED ACROSS STUDIES
 ONE-WAY ANOVAS FOR T4 AT EACH DURATION

----- DURATION=120 -----

General Linear Models Procedure
 Class Level Information

Class	Levels	Values
TRT	5	0.1-mg/k 1.0-mg/k 3.0-mg/k 30.0-mg/ Control

Number of observations in by group = 60

1 MOUSE IMMUNOTOX THYROID HORMONE DATA 18:18 Sunday, December 30, 2001 33
 PROC GLM - COLLAPSED ACROSS STUDIES
 ONE-WAY ANOVAS FOR T4 AT EACH DURATION

----- DURATION=120 -----

General Linear Models Procedure

Dependent Variable: T4

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	1.08566667	0.27141667	1.08	0.3732
Error	55	13.76416667	0.25025758		
Corrected Total	59	14.84983333			
	R-Square	C.V.	Root MSE		T4 Mean
	0.073110	15.47986	0.50025751		3.23166667

Source	DF	Type I SS	Mean Square	F Value	Pr > F
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TRT	4	1.08566667	0.27141667	1.08	0.3732
Source	DF	Type III SS	Mean Square	F Value	Pr > F
TRT	4	1.08566667	0.27141667	1.08	0.3732

1 MOUSE IMMUNOTOX THYROID HORMONE DATA 18:18 Sunday, December 30, 2001 34
 PROC GLM - COLLAPSED ACROSS STUDIES
 ONE-WAY ANOVAS FOR T4 AT EACH DURATION

----- DURATION=120 -----

General Linear Models Procedure

Duncan's Multiple Range Test for variable: T4

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 55 MSE= 0.250258

Number of Means	2	3	4	5
Critical Range	.4093	.4305	.4445	.4547

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	TRT
A	3.3917	12	30.0-mg/
A			
A	3.2750	12	Control
A			
A	3.2667	12	0.1-mg/k
A			
A	3.2417	12	1.0-mg/k
A			
A	2.9833	12	3.0-mg/k

1 MOUSE IMMUNOTOX THYROID HORMONE DATA 18:18 Sunday, December 30, 2001 35
 PROC GLM - COLLAPSED ACROSS STUDIES
 STEP-DOWN MODEL FOR T3

General Linear Models Procedure
 Class Level Information

Class	Levels	Values
DURATION	3	14 90 120
TRT	5	0.1-mg/k 1.0-mg/k 3.0-mg/k 30.0-mg/ Control

Number of observations in data set = 330

NOTE: Due to missing values, only 88 observations can be used in this analysis.

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MOUSE IMMUNOTOX THYROID HORMONE DATA
PROC GLM - COLLAPSED ACROSS STUDIES
STEP-DOWN MODEL FOR T3

18:18 Sunday, December 30, 2001 36

General Linear Models Procedure

Dependent Variable: T3

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	11726.74935456	1954.45822576	4.93	0.0002
Error	81	32091.80837271	396.19516510		
Corrected Total	87	43818.55772727			
R-Square		C.V.	Root MSE		T3 Mean
0.267621		17.56563	19.90465185		113.31590909

Source	DF	Type I SS	Mean Square	F Value	Pr > F
DURATION	2	7239.31239394	3619.65619697	9.14	0.0003
TRT	4	4487.43696062	1121.85924016	2.83	0.0298

Source	DF	Type III SS	Mean Square	F Value	Pr > F
DURATION	2	7423.41453579	3711.70726789	9.37	0.0002
TRT	4	4487.43696062	1121.85924016	2.83	0.0298

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MOUSE IMMUNOTOX THYROID HORMONE DATA
PROC GLM - COLLAPSED ACROSS STUDIES
STEP-DOWN MODEL FOR T3

18:18 Sunday, December 30, 2001 37

General Linear Models Procedure

Duncan's Multiple Range Test for variable: T3

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 81 MSE= 396.1952
WARNING: Cell sizes are not equal.
Harmonic Mean of cell sizes= 17.58621

Number of Means 2 3 4 5
Critical Range 13.36 14.05 14.52 14.85

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	TRT
A	123.378	18	Control
A			
B	118.083	18	1.0-mg/k
A			

B	A			
B	A	113.382	17	30.0-mg/
B				
B		106.412	17	3.0-mg/k
B				
B		104.944	18	0.1-mg/k